



*Don*

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of:

Christophe CHAU et al.

Examiner: Steven J. Bos

Serial No.: 10/667,654

Group Art Unit: 1754

Filed: September 23, 2003

Title: PROCESS FOR THE PREPARATION OF A THIN ZEOLITE MEMBRANE

**REQUEST FOR COMPLETE OFFICE ACTION**

Mail Stop  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

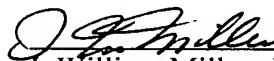
Sir:

In the Office Action of June 26, 2007, (a restriction requirement) the wrong set of claims were evaluated inasmuch as Applicants' filed a Preliminary Amendment, a copy attached herewith with the stamped post card, that contains claims 1-20. Accordingly, the Examiner is courteously requested to supplement the Office Action of June 26, 2007 by providing an Office Action which pertains to all of the claims at issue.

Any inconvenience on the part of the Examiner is regretted.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,

  
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Attorney Docket No.: PET-2078-P01  
Date: June 29, 2007  
RWM:pdr

FILED

September 23, 2003

DOCKET NO.: PET-2078P1

APPLICANT(S)

Christophe CHAU et al

PARENT CASE: PET-2078

THE PATENT AND TRADEMARK OFFICE  
STAMP HEREON ACKNOWLEDGES RECEIPT  
OF THE ABOVE-IDENTIFIED APPLICATION,  
INCLUDING THE FOLLOWING PAPERS:

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PROVISIONAL APPLICATION WITH:

- SPECIFICATION

- DRAWING

TRADEMARK APPLICATION, WITH:

- DRAWING
- SPECIMENS

U.S. NAT'L PHASE OF INT'L APPLN. NO. PCT/ /

NEW ORIGINAL APPLICATION INCLUDING  
17 PGS. OF SPEC., 2 PGS. CLAIMS, 1 PGS.

ABSTRACT

SUBMISSION UNDER 37 CFR 1.53(F)

CONTINUATION-IN-PART

DESIGN APPLICATION

SHEETS OF DRAWINGS

FEE TRANSMITTAL

PRELIMINARY AMENDMENT

INFORMATION DISCLOSURE

PRIORITY DOCUMENT(S)

DECLARATION  ASSIGNMENT

APPLICATION DATA SHEET

OTHER: \_\_\_\_\_

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**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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Christophe CHAU et al.

Examiner: Unassigned

Serial No.: Unassigned

Group Art Unit: Unassigned

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Title: PROCESS FOR THE PREPARATION OF A THIN ZEOLITE MEMBRANE

**PRELIMINARY AMENDMENT**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Prior to initial examination, please amend the above-identified application as follows:

**Amendments to the Claims** are reflected in the listing of claims which begins on page 2 of this paper.

**Remarks/Arguments** begin on page 4 of this paper.

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claim 1 (currently amended): ~~Process A process~~ for the preparation of a supported zeolite membrane ~~consists of~~ comprising a zeolite/substrate composite layer, whose zeolite phase exhibits a crystallinity of at least 85%, whereby said process comprises:

- a) the formation of a gel or a solution that comprises at least one source of silica and water, supplemented with at least one polar organic compound;
- b) bringing into contact said gel or said solution with a porous substrate;
- c) the crystallization of the zeolite starting from said gel or said solution; and
- d) the elimination of residual agents,

characterized in that, in stage (a), the molar ratio of water to silica in said gel or said solution is 27:1 to 35:1 and wherein in stage (c), the crystallization ~~time~~ is conducted for at least 25 hours at a temperature of 100-250°C.

Claim 2 (currently amended): ~~Process A process~~ according to claim 1, wherein in stage (a), the molar ratio of the water to the silica in said gel or said solution is between 27:1 and 32:1.

Claim 3 (currently amended): ~~Process A process~~ according to ~~one of claims-1 to-2~~, wherein in stage (a), the molar ratio of the water to the silica in said gel or said solution is between 28:1 and 31:1.

Claim 4 (currently amended): ~~Process A process~~ according to ~~one of claims 1 to-3~~, wherein in stage (c), the crystallization time is at least 65 hours.

Claim 5 (currently amended): ~~Process A process~~ according to ~~one of claims 1 to-4~~, wherein the zeolite phase exhibits a crystallinity of at least 90%.

Claim 6 (currently amended): Process A process according to ~~one~~ of claims 1 to 5, wherein in stage (a), the molar ratio of the polar organic compound to the silica is between 0.3:1 and 0.6:1.

Claim 7 (currently amended): Process A process according to ~~one~~ of claims 1 to 6, wherein the porous substrate is selected from among the following materials comprises: ceramic based on alumina and/or zirconia and/or titanium oxide, carbon, silica, zeolites, clays, glass and or metal.

Claim 8 (currently amended): Process A process according to ~~one~~ of claims 1 to 7, wherein the zeolite phase is of the MFI-structural type.

Claim 9 (currently amended): Membrane A membrane that is obtained by a process according to ~~one~~ of claims 1 to 8.

Claim 10 (currently amended): Membrane A membrane according to claim 9, wherein it exhibits, in the an n-butane/isobutane separation, an n-butane permeance of at least  $3.10^7$  mol/m<sup>2</sup>.s.Pa at the temperature of 180°C.

Claims 11-12 (cancelled)

Claim 13 (new): In a gas-separation process, a vapor-separation process, a liquid-separation process comprising passing a fluid through said membrane in order to separate said fluid, the improvement comprising employing as said membrane, a membrane according to claim 10.

Claim 14 (new): A process according to claim 13, comprising separating linear and branched paraffins.

Claim 15 (new): A process according to claim 1, wherein said at least one polar organic compound is selected from the group consisting of organic hydroxides, organic structuring agents

containing ammonium or phosphonium irons and corresponding anions, amines, alcohols, crown ethers and cryands.

Claim 16 (new): A process according to claim 1, wherein the water to the silica in said gel or said solution is between 28:1 and 31:1; the crystallization time is at least 65 hours; the zeolite phase exhibits a crystallinity of at least 90%; the molar ratio of the polar organic compound to the silica is between 0.3:1 and 0.6:1; and the zeolite phase is of the MFI-structural type.

Claim 17 (new): A membrane obtained by a process according to claim 16.

Claim 18 (new): A process according to claim 1, wherein the crystallinity is conducted at a temperature of 150-210°C.

Claim 19 (new): A process according to claim 4, wherein the crystallinity is conducted at a temperature of 150-210°C.

Claim 20 (new): A membrane obtained by a process according to claim 19.

**REMARKS**

One purpose of this amendment is to facilitate examination by removing multiply dependent and improper claims. Applicants reserve the right, however, to provide further claims directed to recombined cancelled subject matter.

The amendment also provides comprehensive claims as well as the cancellation of claims 11 and 12 in favor of claims 13 and 14 which are proper method claims as opposed to the improper "use" claims.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,

  
\_\_\_\_\_  
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Date: September 23, 2003  
IWM:pdr:K:\PET\2078\Preliminary Amendment.doc